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On the nature of the project as a temporary organization

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Abstract

The nature of the project as a temporary organization is analysed from the perspective of organizational theory. This leads to a reassessment of the definition of a project. It is suggested that classical definitions of projects are not wrong, just incomplete. The project as a temporary organization is viewed here as a production function, as an agency for assigning resources to the management of change within the functional organization, and as an agency for managing uncertainty. The role of the project manager is also considered. The project manager is chief executive of the temporary organization, and thus their roles in objective setting and motivating team members are emphasized over their role in planning and executing work. Second, as manager of the agency, they are the agent of the owner (principal) and so a second hierarchy of management and control must be put in place to monitor their performance. These agency costs add to the cost of the project, but may also explain why professional recognition is so important to project managers.

Keywords: Agency; Principal-agent; Resouce; Change; Uncertainty; Executive management; Professionalism

1. Introduction

It is 12 years since Turner [1] wrote a paper entitled "What are projects and project management", which has been taken as his definitive statement on the subject, and formed the basis of the definitions used in his books [2]. A project was defined as:

> An endeavour in which human, material and financial resources are organized in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives.

The second edition [3] retained the definition, but also concentrated more on features of projects, indicating a range of features shared by projects, Table 1. A project is undertaken to deliver beneficial change, and thus has three essential features:

1. It is unique: no project before or after will be exactly the same.
2. It is undertaken using novel processes: no project before or after will use exactly the same approach.
3. It is transient: it has a beginning and an end.

These features create three pressures:

1. Projects are subject to uncertainty: we cannot be certain that our plans will deliver the required project outcomes or desired beneficial change.
2. They create a need for integration: of the resources to do the project, between different parts of the project, and of the project into the business.
3. They are undertaken subject to urgency: of delivering the desired outcomes within the desired timescales.

Turner [3] suggested it is these three pressures that are special to project management, not the management of time, cost and quality, which is shared with routine operations management. He further suggested that an endeavour that had many of those features would be better managed as a project, but that one that had only a few would be better managed as a routine operation.

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Table 1
Features of projects

Aim	Features	Pressures	Processes
To deliver	Unique	Uncertainty	Flexible
Beneficial	Novel	Integration	Goal Oriented
Change	Transient	Transience	Staged

For endeavours that have some of the features, you may adopt some elements of both project management and routine operations management. Table 1 shows that the project management processes need to be flexible, goal oriented and staged, in direct contrast to (truly) routine operations management, where the processes need to be stable, activity oriented and continuous.

However, applying the concepts of organization theory [4] to the project as a temporary organization has lead us to question the definition; not to suggest it is wrong, just incomplete. It is adequate for some purposes; but does not define fully the roles, functions and limits of projects. It has not been possible for classical economics to produce a definitive theory of the firm [5]. For instance, the firm as a production function or principal-agent theory cannot answer the make-or-buy question; should a firm make all its intermediate products in the hierarchy, or buy them in the market. Either would predict that the entire capitalist system should be organized as a single firm, or that the firm should procure all its intermediate products in the market, acting only as a design and marketing company (and manager of the supply chain), as with Benetton.

Most classical definitions of projects (including the aforementioned) do not answer similar questions about projects. Should a firm organize all its change activity as one large project or programme, or should it break it into a myriad of tiny projects? (According to the earlier definition, the making of a cup of tea can be considered to be a project, which is not useful for most purposes.) Turner and Keegan [6] addressed the question of whether organizations should manage all their work as projects, showing that fundamentally routine work should be managed as such since there are higher transaction costs associated with managing work as projects. But what is the limit on the size of a project as a temporary organization?

In this paper, we re-address the nature of projects as temporary organizations. We consider:

- the project as a production function;
- as a temporary organization;
- as an agency for change;
- as an agency for resource utilization; and
- as an agency for uncertainty management

and show how some of the classic definitions of projects do or do not address these issues. We do not address the nature of project management, standing by the earlier definition that project management is the process by which projects are successfully delivered, and their objectives successfully achieved (whatever is meant by successfully [1–3]). However, we do address the role of the project manager, considering:

- the project manager as chief executive of the temporary organization and
- as the agent of the principal

2. The project as a production function

Many of the classical definitions of projects emphasize the role of a project as a production function, just as the earliest definitions of the firm in classical economics [5,7]. For instance, the earlier definition starts by saying the project is "an endeavour", and some of the classical definitions, many given in Turner [2,3], do likewise:

> Something which has a beginning and an end, [8]
>
> A human endeavour which creates change, is limited in time and scope, has mixed goals and objectives, involves a variety of resources and is unique, [9]
>
> A complex effort to achieve a specific objective within a schedule and budget target, which typically cuts across organizational lines, is unique and is usually not repetitive within the organization, [10]
>
> A one time unique endeavour to do something that has not been done that way before, [11]
>
> A temporary endeavour undertaken to create a unique product or service, [12].

Even in Barnes's definition, one tends to interpret the "something" as an endeavour, activity or task, rather than an organization or agency as we shall see shortly.

What follows, paraphrases Hart [5], but refers to projects rather than firms. According to these definitions, the project is a collection of plans, presided over by a manager, who buys and sells the project's inputs and outputs on the open market, and tries to maximize the benefit to the owner. The benefit is the net present value of the project, discounted for risk. This is a caricature of the project. It is popular because:

- it lends itself to easy mathematical formulation, (critical path analysis, earned value analysis, etc.);
- it is useful for examining how the project plan responds to risks; and

- it is useful for analysing the interaction between the project and other projects and routine operations.

However, this perspective has weaknesses. It does not explain:

- how resources are assigned to the project;
- how conflicts between stakeholders are resolved;
- or even how benefit is maximized;
- and whether it is better to undertake two projects as one, two or four projects.

The theory tells us nothing of the structure of projects. That does not mean the definitions above are wrong. They are just not enough.

3. The project as a temporary organization

The first layer of texture we can add is to view the project as a temporary organization, which leads us to the equivalent of principle/agent theory for the firm. The concept of projects as temporary organizations is fairly recent. Cleland and Kerzner [13] define a project as:

> A combination of human and non-human resources pulled together into a temporary organization to achieve a specified purpose.

This overtly defines the project both as a temporary organization, and as a production function and an agency for assigning resources, (see later). Most of the other definitions refer only obliquely to project's being temporary organizations. Turner's [1] definition says directly that the project is a vehicle (or agency) for organizing resources (see later) and therefore implies that it is an organization. The definition also implies quite overtly that the endeavour is unique, novel and transient, which are the three main features referred to in the second edition [1]. Barnes's definition says that the project has a beginning and end, but as I said earlier, the ''something'' sounds more like a production function than an organization. The others refer more or less directly to the project's being temporary, but most emphasize the production function rather than the organization. Others, such as Cleland and King [10], also refer to the role of the project as an agency for assigning resources.

As a temporary organization, the project is an agency established by a parent organization (the principal) to achieve specific objectives. On the time scale on which the project exists, the parent organization can be taken to be stable, its structures given. Thus, a project has much in common with an agency in a political bureaucracy [14]. It will have its proponents, who will try to create structures to ensure its success, while its opponents will try to undermine it. The principal will need to appoint a manager (the agent) to manage the project on their behalf. The principal will need to create structures, including information channels, to monitor the manager's decisions to ensure they are aligned with the owner's objectives of profit maximization. Turner and Keegan [6] have suggested that this is one of the roles of the broker and the steward, and of configuration management.

Viewing the project as a temporary organization introduces many of the elements of project management, including:

- the conflict of interest between the various stakeholders;
- the role of the manager (agent), and of the broker and steward;
- the need to put in place information and communication systems to monitor delivery of the project, to monitor achievement of the owner's objectives, and to avoid self-interest and opportunism by the project's participants, especially the agent.

However, it still does not tell us whether two projects should be managed as one, two or four. To be able to reach that conclusion we need to look on the project as an agency for change and as an agency for resource utilization.

4. The project as an agency for change

The definition of projects by Andersen et al. [9] and Turner [1] emphasize that projects deliver change. Traditional organizations adopt projects as a vehicle (or agency) for change. They create the temporary organization to deliver a coherent set of change objectives, because projects are better suited for managing change than the functional organization. There are several reasons for this:

1. Functional organizations have high inertia to change [15]. Projects can provide an impetus to overcome the inertia, they can be set up separately from the functional organization so the small, temporary organization has little or no inertia, allowing the change to build up momentum, and they can be used to prototype the change. Briner et al. [16] describe such a change project with Norwich Union. The establishment of the Sheffield Office at first sight appears unsuccessful since the office closed soon after being opened. However, it did enable the

company to initiate and prototype a successful change process that ultimately enabled the company to be demutalized.
2. Projects being small temporary organizations are more flexible and better able to respond to uncertainties in the change process and change objectives, as we shall see later.
3. The functional organization is designed for the management of the routine, and so is not suited for managing change [3].

This view of the project as an agency for change begins to define the boundaries of a project. It is defined by a coherent set of change objectives.

It also supports the usual distinction between a programme and a project [17]. A project is a temporary organization designed to deliver a specific set of change objectives. A programme is a framework to provide strategic direction to a group of projects so that they can combine to provide higher order strategic or developmental change for the organization. If a project is a temporary firm, a programme is a temporary group of firms (which ceases to exist when the last project ceases to exist).

5. The project as an agency for resource utilization

Several definitions emphasize the role of the project as a vehicle (or agency) for assigning (or organizing) resources for completion of the endeavour or task. Turner's [1] definition includes this as a central element, and Cleland and King's [10] and Cleland and Kerzner's [13] definitions says the project is a focus for assigning resources from across the firm.

Carroll [15] says the success of different organizational forms is dependent on their ability to attract resources. Projects have been used as an organizational form to provide a vehicle for assigning resources to the delivery of change in organizations since the 1950s [18], and this can be taken as a measure of its success. Clearly as temporary organizations, projects need to negotiate afresh for resources as each is started. However, as we saw in the last section, functional organizations have high inertia to change, and so projects do seem to be perceived as an effective way of assigning resources to change in organizations.

Carroll [15] also says that the only measure of an organization's efficiency is its longevity. Clearly this is wrong in the case of projects which are established as temporary organizations, although its success as an organizational form of first choice for assigning resources to change is long lived. They can be successful at attracting resources (although not always), they can be a way for organizations to set aside resources to achieve change, and if well managed they can be an efficient way of achieving that change. Unfortunately, in North America, project management is becoming the latest management fad, like Total Quality Management or Business Process Reengineering previously [19]. When people find it is not the universal panacea, to cure all their ills, they may reject it in spite of its obvious advantages.

We can answer the question about the limit of the project: a project is defined by a coherent set of change objectives to which it is sensible to assign a set of resources for its management. If one set of resources is responsible for several unrelated sets of change objectives, it could lead to their ineffective or inefficient utilization. The role of the project as an agency for resource allocation also implies something about the structure of the project and the conflicting goals of principle and agent. While the agent's goal is efficiency in project delivery through employment of 'the best' and most effective resources, the principal's objective is the balanced utilization of the entire staff and with it the simultaneous allocation of effective and less-effective resources to projects. While the most sought after resources are automatically booked-out, the principal's role becomes one of 'selling' the less effective resources to the agents. This conflict is widened through the imbalance in detailed knowledge about the project. It puts the agent at an advantage, weakening the principal's authority over project related decisions. Turner and Keegan [6] have suggested the sourcing of resources should not be the role of the project manager, but of the broker and steward.

From a principal's perspective the boundaries of a project are less clear than from an agent's (project manager's). Organizations adapt their operational processes to the needs of their projects to economize on similarities in the support needs of projects. These background processes are aligned for the achievement of project goals of the temporary organization while being mandated to achieve the permanent organization's objectives. Within this conflict, the limit of a project's impact on these changes is not defined. Project management maturity models, like the Organizational Project Management Maturity Model from the Project Management Institute [20], try to provide guidelines for the optimization of processes at the interface between permanent and temporary organization. To that end the boundary of a project is not as clear as from an agent's perspective.

Research on organizational support [21] showed extension of project requirements beyond the project team and into the functional organization is lacking, and mechanisms for sharing and resolving resource issues are seldom in place. The principal's performance evaluation is seldom tight to their degree of support of cross-functional project teams.

To reinforce this point, it is common to define a portfolio of projects as a set of projects which share a common resource pool, which are managed together for the efficient utilization of the resource pool. The portfolio itself is not defined as a single project. Reasons for this include:

1. The portfolio itself is more permanent in nature. The projects come and go, but the portfolio itself can exist as a permanent organization. Each project is assigned to the portfolio, and then resources assigned to the project from the resource pool. Note that this contradicts the definition of Cleland and King [10], since in this case the project does not cut across organizational lines.
2. Each project in itself delivers a coherent set of change objectives. The portfolio is a permanent organization created for the purpose of efficient utilization of resources across the projects that it comprises. The projects are temporary organizations created for the effective delivery of the change objectives.

Thus we see that unlike the firm in classical economics, it is quite easy to delineate a project, and clearly differentiate it from a programme and a portfolio of projects.

6. The project as an agency for uncertainty management

Almost none of the classic definitions of projects address their riskiness directly, although when discussing the features of projects, Turner [3] says that uncertainty of the product and process is one of the key consequences of the features. Turner and Cochrane [22] developed a taxonomy for projects based on uncertainty of product and process.

Turner and Keegan [6] suggest that the need to manage configuration and the reduction of uncertainty is the main (additional) transaction cost associated with projects. Thus the project as an agency for uncertainty management implies something about both the scope and structure of the project. Turner and Keegan [6] proposed the roles of broker and steward to act as communication channels between the client and project manager (principal and agent) during delivery of the project. Further, where uncertainty management of one element of work has no impact on that of another, there is no benefit from an uncertainty perspective to include them in the same project. Where such impacts exist it may well help economize on transaction costs to include them in the same project, although on occasion such impacts may be handled at the programme level, or at the broker/steward interface.

Table 1 suggests that there are three key pressures in projects, not met in the functional organization: the uncertainty, the need for integration and the urgency. Treating urgency as a risk, we see that these three pressures have now been addressed. The agency itself manages the need for integration, both of the resources that are assigned to the agency, and of the agency with the parent organization and its context. And the agency itself is a vehicle for managing the uncertainty and urgency.

7. The project manager as chief executive of the temporary organization

As we said at the start, it is not our intention to redefine project management. Turner [1] defined project management as the process by which a project is successfully completed, and its objectives successfully delivered (whatever is meant by "successfully"). However, we do wish to consider two issues relating to the project manager arising from the earlier discussion.

The first is that if the project is a temporary organization, the project manager is chief executive of the temporary organization. Scott [23], quoting Barnard [24], says that the executive's role is not mainly one of management, administration and of supervision, but:

> to formulate purposes, objectives and ends of the organization. . .This function of formulating grand purposes and providing for their redefinition is one which needs systems of communication, experience, imagination, interpretation and delegation of responsibility.

This view of the project manager is perhaps at odds with many people's view of them as a non commissioned officer, planning plans using their PC based software, and distributing those plans. The view of the project manager as chief executive sees their role as one of formulating objectives and strategy for the project, and through the purpose of the project, linking those objectives and strategy to the objectives and strategy of the parent organization [25]. The project manager should learn to delegate the planning and reporting, and most of the work. The managers role is further to interpret the plans and progress reports, to interpret them and redefine them to achieve the project's objectives.

Scott further says the executive has cognitive and cathectic roles. The cognitive roles emphasize the rational ways in which the executive tries to guide and limit the choices of subordinates; the executive delegates to subordinates, but then seeks to guide, direct and constrain their options. This is the traditional view of project management of rational planning, but one of the guider rather than the doer. The cathectic roles are more non-rational, the motivational and emotional aspects of goal setting. Project team members must be motivated to act, and they must develop faith in and commitment to a larger moral purpose. Several of the authors in Williamson's book, including Williamson himself, emphasize this moralistic role to avoid sub-goal pursuit and opportunism. Covey [26] emphasizes the cathectic roles in his pyramid of influence, saying it is necessary to build belief in the executive's purpose and to build relationships, before trying to overtly influence subordinates through rational argument.

There is growing evidence that competence in the traditional areas of the project management body of knowledge [12,27] are essential entry tickets to the game of project management, but they do not lead to superior performance [28,29]. They are hygiene factors, necessary conditions for project management performance, but they are not competitive factors for which improved competence leads to superior project performance. The two elements from PMI's Body of Knowledge which lead to superior project performance are Managing Communication and Managing Risk [30,31]. Other competitive factors are those described earlier by Scott.

Thus viewing the role of the project manager as chief executive of the temporary organization gives us perhaps a different view of their role, as the purely rational one many traditional views of project management encourage. This perspective identifies commonalities in the role of the chief executive and the project manager, but it also shows apparent differences in existing control instruments and measures for success. Project managers are measured and remunerated on a very limited set of success criteria, such as time, scope, budget, and controlled by a small number of people, like the principle or broker. The chief executive has to cope with a variety of (often conflicting) goals and measures and is controlled by a board of directors and the community of stakeholders. This leads to a more balanced management towards the sum of objectives, including the interface to the organization's environment. Accepting the project manager as a chief executive of a project, with a similar set of measurements for success, identifies the project manager's additional responsibilities for managing the interface to neighbouring projects, the community of users and the contribution to the client's overall objectives of the project. It questions the current, constrained and inward looking definition of the role of project manager.

8. The project manager as the agent of the principal

A complimentary view sees the project manager as the agent of the principal. In the section headings we referred to the project as an agency for the achievement of certain purposes, not as a vehicle, to emphasize that the owner organization establishes the project, the temporary organization, to achieve certain ends. The principal (owner) then needs to appoint an agent (chief executive) to manage the work of the temporary organization to achieve those ends. First the principal needs to recruit a project manager of appropriate competence.

But once he or she is appointed, the principal needs to impose a second level of hierarchy and control above the project to control the activities of the agent. Even though the project was created by the principal, the agent being more closely involved knows more about it, and so there is a power shift from principal to agent. The principal tries to win back power through this second hierarchy. Turner and Keegan [6] have described this second hierarchy of control in project-based organization, and identified the roles of the broker and steward as two key roles in this structure. However, even still the principal faces two classic problems in their relationship with the agent. The first is the principal knows less about the project than the agent and so will find it difficult to question their decisions. This is the adverse selection problem [14]. Second, the agent has their own objectives to pursue. They may have a different idea about what is right for the project, or may even have objectives that are not aligned with the principal. This is the moral hazard problem [14]. Thus, the principal needs to put in place incentives to align the agent's objectives with their own, and control mechanisms to stop opportunism. Communication between the principal's organization and the agency must be kept redundant through multiple channels and boundary spanning individuals [32,33] to ensure a holistic view of the project on the side of the principal.

These agency costs increases the cost of a project as an organizational form compared to the functional hierarchy. It might be said they also exist in the functional hierarchy. The bureaucratic costs of the functional hierarchy do make it more expensive than the market. But it is easier for the manager's behaviour to be monitored in a routine environment, and if they indulge in opportunistic behaviour they can be dismissed. The manager's desire to keep their job, and their financial incentives in the organization reduces their rewards from opportunism.

Because the project is a temporary organization, the rewards of opportunistic behaviour are greater, and the incentive not to indulge less (the project might be finished by the time the manager is found out). Thus there is a need for greater control and so the agency costs are higher. I am not suggesting that project managers are less trustworthy than other managers; it is just less easy to be found out before the project is finished, and so the principal will require greater monitoring.

The role of project manager as agent may be why professionalism is so important to project managers. When the principal appoints an accountant, lawyer or engineer, their membership of a profession is an indicator of both of peer-reviewed competence, and of trustworthiness, and so can ease the appointment process. The desire to maintain professional status outweighs the desire for short-term gain arising from opportunism, and so increases the trustworthiness of the professional. Professional membership will reduce the agency costs associated with a given project manager compared to one who is not.

Turner and Simister [34] have described how different contract forms can be used to incentivize project managers to share the owner's (principal's) objectives from the project.

9. Conclusion

We have considered the perspectives organization theory brings on the project as a temporary organization, and have found it easier to develop a theory of the project than it is to develop a theory of the firm. If the project is viewed as a temporary production function, for assigning resources to the implementation of change objectives, it delineates each project, and suggests why it should be of a certain size. Further it differentiates projects from programmes and portfolios of projects.

We would now propose a definition of a project. We opened by saying that we think that the former definitions are not wrong, just incomplete. However, we might now propose this revised definition of a project:

> A project is a temporary organization to which resources are assigned to undertake a unique, novel and transient endeavour managing the inherent uncertainty and need for integration in order to deliver beneficial objectives of change.

We have not qualified the resources to say that they are human, material and financial. We now take that as given. We have also not said that they are a novel grouping, nor that they are drawn from across the organization. Since the project is temporary, it is likely (but not necessary) that the grouping will be novel, and that they will be drawn from across the organization, but they can come from just one function, including the project function.

We would also offer this definition of a portfolio of projects:

> A portfolio of projects is an organization, (temporary or permanent) in which a group of projects are managed together to coordinate interfaces and prioritize resources between them and thereby reduce uncertainty.

We would also propose a definition of a programme of projects as:

> A programme of projects is a temporary organization in which a group of projects are managed together to deliver higher order strategic objectives not delivered by any of the projects on their own.

However, we realize that the definition of a project given earlier applies equally well to programmes as described by Murray-Webster and Thiry [17]. The difference then between a project and a programme is that the objectives of a programme are then less specific and longer term. The objectives of a project are SMART (specific, measurable, achievable, realistic and timelined), whereas those of a programme are less SMART (less specific, less accurately measurable, and less accurately timelined, but still achievable and realistic).

This view of the project as a temporary organization highlights the role of the project manager as chief executive of the temporary organization, and additional competences that implies over and above those laid out in the project management bodies of knowledge. In this role, the project manager has cathectic as well as cognitive roles. He or she is responsible for defining the purpose and objectives of the project, motivating the project team to achieve them, and manage the project relative to internal and external objectives. Planning, execution and control of the work should be delegated, but the project manager should limit the options of the team to ensure objectives are delivered as required by the owner (principal), and to interpret progress to define and reformulate the work as required.

The role of the project manager as agent of the principal points to the need for the owner as principal to put in place a higher tier of hierarchy and control above the project to monitor the performance of the project manager as agent. This is to ensure that the project manager's objectives are aligned with the owner's (the moral hazard problem) in a situation where the project manager knows more about the project than the owner (the adverse selection problem). These risks are more acute in a temporary organization than a permanent one. This leads to higher transaction costs associated with the management of an endeavour as a project. If project management were recognized as a profession, and the use of the title "Project Manager" restricted to those individuals in possession of related professional certification, it would help in the selection of project managers, giving greater confidence in their competence and trustworthiness.

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